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orthoclase, microcline, apatite, and sphene, with secondary chlorite, calcite, muscovite, epidote, and hematite. The micropertthite and usually the biotite are in phenocrysts, the remainder of the minerals constituting a groundmass with the trachytic structure. The most basic of the dikes has the following composition :

SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	FeO	MnO ₂	CaO	MgO	K ₂ O	Na ₂ O	P ₂ O ₅	Cl	F	Loss	Tot.
52.53	18.31	.34	6.43	.15	3.15	1.82	6.47	7.26	1.59	.40	.32	1.16	= 99.93

The magma from which the dike material was produced belongs to the foyaite type. The most acid of the dikes are syenite porphyries; the most basic are types of a rock that would seem to be too basic to be included in this group.

A Study in Weathering.—An interesting study of weathering has recently been made by Smyth,¹ his subject being the dike of alnoite at Manheim, N. Y. The fresh rock, which is black, consists largely of biotite, and serpentine derived from olivine, and of some magnetite, apatite, perofskite, and secondary calcite. Its weathered product is a soft golden-brown clay-like mixture of bleached mica, magnetite, perofskite, probably apatite, and some very fine-grained material of uncertain nature.

Analyses of the fresh and the weathered rock calculated to 100 per cent, and the proportion of loss for each constituent are :

	SiO ₂	TiO ₂	Al ₂ O ₃	Fe ₂ O ₃	FeO	MgO	CaO	K ₂ O	Na ₂ O	Ign	Tot.
Fresh	35.51	2.27	6.14	8.59	5.64	20.55	7.46	2.90	.71	10.23	100
Weathered	33.40	2.93	7.95	16.86	1.49	13.54	5.30	.29	.23	18.01	100
Loss	27.31	.00		3.70	48.97	45.10	92.27	74.97		.00	

About 27 per cent of the original rock has been removed by solution, causing its complete disintegration, and yet a great portion of its original components can be detected in its weathered product.

Notes.—Hopkins² describes the brownstones of Pennsylvania from the economic standpoint. He gives a brief account of the microscopic structure of thin sections of the product of each of the working quarries in the state.

Although the liebenerite-porphyry of Predazzo has long been regarded as a rock derived from some nepheline-bearing porphyry, no rock containing nepheline had been found in the Predazzo district

¹ Smyth, Jr., C. H. *Bull. Geol. Soc. of Amer.*, vol. ix, p. 257.

² Appendix to *Ann. Rep. Penn. State College*, for 1896.

up to within a few years past. Osann and Hlawatsch ¹ now report the existence of blocks of a porphyritic rock in the Viezzena valley, in whose hand-specimens phenocrysts of sanidine are plainly evident. In the thin section, phenocrysts of orthoclase, microcline, plagioclase, pyroxene, hornblende, mica, and garnet are in a holocrystalline groundmass composed of feldspars, nepheline, sodalite, and various secondary products. The authors call the rock a nepheline-syenite porphyry. It differs from the original of the liebenerite-porphyry in containing no nepheline phenocrysts.

On the contact of a hauynophyre dike with limestone near Horberich, in the Kaiserstuhl, Brauns ² finds a contact rock that is very unusual in composition. It consists of melanite, calcite, augite, gehlenite, hauyn, apatite, and mica. The gehlenite is in well-defined crystals, intergrown with the calcite, garnet, and the hauyn. The hauyn, melanite, and augite are thought to have been derived from the volcanic rock, and the gehlenite to be a result of the contact action.

A few volcanic rocks from the Baluchistan-Afghanistan boundary have been submitted to McMahon ³ for study. He finds among them andesites, basalts, a granite, a quartz-syenite, various acid lavas, pumice, tuffs, and a few sedimentary rocks. The phenocrysts in the andesite are oligoclase and andesine, the former predominating. Three of the andesites contain anthophyllite; and one, an augite hornblende-andesite, contains phenocrysts of olivine.

The lava ⁴ of Mt. Edgecombe, Krusov Island, Alaska, is an hypersthene-andesite composed of two generations each of plagioclase, hypersthene, augite, and magnetite.

Cross ⁵ reports the existence of another volcanic rock containing analcite. The rocks form a small outcrop in "The Basin," about twelve miles west of Cripple Creek, Colo. It is a basalt, composed of the usual constituents of basalt, to which are added large and small colorless grains of analcite. Analysis of the separated analcite yielded:

SiO ₂	Al ₂ O ₃	Fe ₂ O ₃ .FeO	CaO	SrO	MgO	K ₂ O	Na ₂ O	K ₂ O	Tot.
51.24	24.06	1.20	1.62	.06	.33	1.25	11.61	9.09	= 100.40

The analysis of the rock shows it to be very closely allied to the monchiquites of Rosenbusch.

¹ *Min. u. Petrog. Mitth.*, vol. xvii, p. 556.

² *Bericht. Oberhess. Ges. f. Natur. u. Heilk.*, 1898.

³ *Quar. Journ. of Geol. Soc.*, p. 289, August, 1897.

⁴ Cushing, H. P. *Amer. Geol.*, p. 156, September, 1897.

⁵ *Journ. of Geol.*, vol. v, p. 684, 1897.